

CLASSIFICATION **CONFIDENTIAL**  
 CENTRAL INTELLIGENCE AGENCY  
 INFORMATION FROM  
 FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

COUNTRY USSR  
 SUBJECT Economic - Iron and steel  
 HOW PUBLISHED Monthly periodical  
 WHERE PUBLISHED Moscow  
 DATE PUBLISHED Sep/Oct 1946  
 LANGUAGE Russian

DATE OF INFORMATION 1946

DATE DIST. 1 Nov 1950

NO. OF PAGES 6

SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT NO. U. S. C. 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Stal', No 9/10, 1946.PEACE AND WARTIME USE OF ALLOY SCRAP IN THE USSR

During the war, state norms for the use of certain alloy waste products were adopted. For example, in the smelting of nickel steels, no less than 35 percent of nickel-bearing waste products had to be used; beginning in November 1944, this norm was increased to 40 percent for grades of steel containing no more than 1.5 percent chromium. The actual norms for consumption of nickel-bearing waste products in smelting nickel steel in the chief plants of the Ministry of Ferrous Metallurgy were in many cases even higher than the required norms, as table 1 shows.

Table 1. Consumption of Nickel-Bearing Waste Products  
 per Ton of Nickel Steels (kilograms)

Plant	1943	1945
"Elektrostal'"	(400) *	538
Zlatoust	(390) *	506
Chelyabinsk	(380) *	602
Plant imeni Serov	372	529
Magnitogorsk	183	375
Kuznetsk	362	317
Novo-Tagil'skiy	361	396

\* [Significance of parentheses not determined.]

Great success in using nickel-bearing wastes was also achieved in almost all large-scale steel-smelting plants of other ministries; in 1945, the consumption of these wastes reached the maximum, constituting in some plants from 506 to 651 kilograms per ton of steel. Two large-scale plants alone used 340 and 400 kilograms of waste products per ton of nickel steel. In 1945, the utilization of waste products saved thousands of tons of nickel and hundreds of tons of molybdenum.

- 1 -

**CONFIDENTIAL**

CLASSIFICATION		CONFIDENTIAL		DISTRIBUTION									
STATE	<input checked="" type="checkbox"/> NAVY	<input checked="" type="checkbox"/> NSRB											
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> FBI											

**CONFIDENTIAL**  
CONFIDENTIAL

50X1-HUM

To effect these results, the Ministry of Ferrous Metallurgy adopted a number of organizational and technical measures, primarily to control the formation, grading, and use of the alloy wastes. Of positive significance was the measure taken by Gosplan USSR and the Ministry of Ferrous Metallurgy to attach the major plant-suppliers of alloy wastes to the plant-consumers of these wastes. The total annual movement of alloy waste products is given in Table 2.

Table 2. Movement of Alloy Waste Products\*  
(1,000 tons)

<u>Indexes</u>	<u>Lump Wastes</u>		<u>Cuttings</u>	
	<u>1944</u>	<u>1945</u>	<u>1944</u>	<u>1945</u>
Balance at beginning of year	255.6	169.3	50.0	35.9
Formation	1,019.3	1,018.3	144.8	134.4
Consumption	1,042.7	1,068.1	57.5	108.9
Balance at end of year	169.3	168.7	35.9	22.1

\* 1944 -- for 48 plants; 1945 -- for 52 plants

- 2 -

CONFIDENTIAL

**CONFIDENTIAL**

**CONFIDENTIAL**

CONFIDENTIAL

50X1-HUM

Table 3. Distribution of Alloy Waste Products by Groups  
(1,000 tons)

Groups of Wastes	Grades of Steel	1944			1945		
		Lump	Cuttings	Total	Lump	Cuttings	Total
8, 9	Chromium structural	88.6	22.3	110.9	103.5	20.2	123.7
23	Hadfield	34.3	--	34.3	24.4	--	24.4
26	Chrome-nickel-tungsten structural	11.9	--	11.9	7.3	0.2	7.5
24, 25	Chrome-nickel structural	--	--	--	44.7	48.0	92.7
27	Chrome-nickel-molybdenum structural	705.3	106.8	812.1	656.1	48.3	704.4
30, 34	Chrome-silicon, chrome-aluminum	67.2	4.2	71.4	47.8	0.2	48
28, 33	Molybdenum structural	93.7	7.1	100.8	99.6	13.8	113.4
13-18	Stainless, heat-resistant, and others with high nickel content	4.7	0.2	4.9	3.7	0.1	3.8
19-22	Stainless, heat-resistant without nickel	3.8	0.1	3.9	2.9	0.1	3.0
1, 2	Tool with cobalt	0.007	--	0.007	0.02	--	0.02
3, 4, 5, 7	Tool with tungsten	6.0	0.2	6.2	7.8	0.4	8.2
10-12	Tool with vanadium and substitutes	9.8	4.8	14.6	20.5	3.05	23.55
	Others and those of unknown grade	1,025.3	145.7	1,171.0	1,018.3	134.4	1,152.7
Total							

- 3 -

CONFIDENTIAL

**CONFIDENTIAL**

**CONFIDENTIAL**

CONFIDENTIAL

50X1-HUM

The data on procurement of alloy waste products by "Glavvtorchermet" (Main Administration of Secondary Ferrous Metals), as given in Table 4, shows that, despite a certain decrease in total steel smelting during wartime, the quantity of alloy waste products not only did not decrease, but increased substantially.

Table 4. Procurement of Alloy Waste Products by "Glavvtorchermet"  
(1,000 tons)

<u>Year</u>	<u>Lump</u>	<u>Cuttings</u>
1936	49.5	22.2
1937	37.6	20.9
1938	40.5	30.0
1939	40.2	43.2
1940	84.5	73.6
1941	112.8	93.3
1942	198.7	63.9
1943	219.4	89.6
1944	228.6	78.7
1945	250.9	101.2

A comparison of plant records on the formation of alloy waste products with records of "Glavvtorchermet" on their shipment has helped to establish (allowing 5-10 percent error) the degree of "marketability" of the alloy waste products in different categories. It should be noted that the marketability of the cuttings is considerably higher than that of lump scrap. Lump scrap of tool steel and Hadfield steel has the least marketability.

- 4 -

CONFIDENTIAL

**CONFIDENTIAL**

CONFIDENTIAL  
CONFIDENTIAL

50X1-HUM

Table 5. Marketability of Various Groups of Alloy Waste Products

		Movement of Wastes in 1944-45 (1,000 tons)									
Groups of Wastes	Grades of Steel	Formation			Shipments*			Marketability (%)			Total
		Lump	Cuttings	Total	Lump	Cuttings	Total	Lump	Cuttings	Total	
24-27	Nickel-bearing structural	1,425.0	203.0	1,628.0	377.0	148.0	525.0	26.5	72.9	31.0	
1-5, 7, 10-12	Cobalt, tungsten vanadium, tool	13.8	0.6	14.4	0.25	0.25	0.5	1.8	41.7	3.5	
8, 9, 34	Chromium structural	307.0	47.0	354.0	46.0	26.0	72.0	15.0	55.3	20.3	
28, 33	Molybdenum structural	193.0	21.0	214.0	51.0	4.0	55.0	26.4	19.1	25.8	
13-18	Stainless and others with high nickel content	8.4	0.3	8.7	1.7	--	1.7	20.2	--	19.5	
23	Hadfield steel	58.7	--	58.7	0.2	--	0.2	0.3	--	0.3	
Others		37.1	8.1	45.2	3.1	1.9	5.0	4.3	13.4	6.0	
Total		2,043.0	280.0	2,323.0	479.5	179.9	659.4	23.3	63.9	28.3	

\* By "Glavvtorchermet"

- 5 -

CONFIDENTIAL

CONFIDENTIAL

**CONFIDENTIAL**

CONFIDENTIAL

50X1-HUM

Comparison of data for 1944-45 with data for 1940 has helped to determine the change in the composition of marketable waste products in wartime.

Table 6. Comparison of Peacetime and Wartime Waste Products

Groups of Wastes	Grades of Steel	Composition of Waste Products (% of Total)					
		Lump		Cuttings		Total	
		1940	1944-45	1940	1944-45	1940	1944-45
24-27	Nickel-bearing structural	46.5	78.9	75.7	82.6	60.0	80.0
1, 3-7, 10-12	Tungsten and other tool	0.6	9.05	1.4	0.1	0.9	0.1
8, 9, 34	Chromium structural	35.9	9.6	22.4	14.5	29.7	10.8
28, 33	Molybdenum structural	15.2	10.7	0.4	2.2	8.4	8.4
13-18	Stainless and others with high nickel content	0.7	0.4	0.04	--	0.4	0.3
Others		1.2	0.35	0.06	0.6	0.6	0.4
Total		100	100	100	100	100	100

The proportion of waste products of chromium structural steels decreased, with a corresponding increase in the proportion of nickel-bearing waste products. The proportion of tool steel waste decreased sharply. The shipment by "Glavvtorchermet" of alloy scrap increased in comparison with 1940 by three times for lump scrap and only 20 percent for cuttings. Shipment of scrap of military origin (tank, weapon scrap) had a part in this, although the majority of it was not considered as alloy scrap by "Glavvtorchermet."

- E N D -

- 6 -

CONFIDENTIAL

**CONFIDENTIAL**